

Application No.: 10/619,483
Amendment Under 37 C.F.R. §1.111 dated November 1, 2004
Response to the Office Action of June 2, 2004

Listing of Claims:

This listing of claims replaces all prior versions and listings of claims in the application.

Claim 1 (Currently Amended): A semiconductor device comprising:

a carrier substrate;

an integrated circuit chip mounted on the carrier substrate through bumps; and

a capacitor provided to stabilize operation of the integrated circuit chip at high frequencies,

wherein the capacitor is electrically connected to pads on bottom of the integrated circuit chip by bonding pads of the capacitor directly contacting the pads on the bottom of the integrated circuit chip, and the capacitor is provided to have a height on the carrier substrate that is smaller than or equal to a height of the bumps on the carrier substrate, and

wherein the capacitor is provided with a substrate having a bottom surface in contact with a top surface of the carrier substrate on which the integrated circuit chip is mounted.

Claim 2 (Canceled)

Claim 3 (Withdrawn): A semiconductor device comprising:

a carrier substrate;

an integrated circuit chip mounted on the carrier substrate;

a capacitor provided to stabilize operation of the integrated circuit chip at high frequencies; and

a lead frame provided on the carrier substrate and electrically connected to the integrated circuit chip through a wire,

wherein the capacitor is electrically connected to pads on the integrated circuit chip, and the capacitor is provided to have a height on the integrated circuit chip that is smaller than a height of the wire on the integrated circuit chip.

Claim 4 (Currently Amended): The semiconductor device of claim 1 [[or 3]] wherein the carrier substrate is made of silicon.

Claim 5 (Original): The semiconductor device of claim 1 wherein the capacitor is provided with a dielectric layer containing a dielectric oxide, and the dielectric oxide of the dielectric layer is made of a composite oxide which contains at least one of elements including Sr, Ba, Pb, Zr, Bi, Ta, Ti, Mg, and Nb.

Claim 6 (Original): The semiconductor device of claim 1 wherein the capacitor is provided to have upper and lower electrodes which interpose a dielectric layer therebetween, and the upper and lower electrodes containing at least one of metallic elements or metallic oxides including Pt, Au, Cu, Pb, Ru, Ru oxide, Ir, Ir oxide, and Cr.

Claim 7 (Original): The semiconductor device of claim 1 wherein the capacitor is provided with a substrate and pads, and a thickness of the capacitor, including the substrate and the pads, is set to 50 micrometers or less.

Claim 8 (Original): The semiconductor device of claim 1 wherein the capacitor is a thin-film capacitor which includes a substrate, an upper electrode, a lower electrode and a dielectric layer, and the dielectric layer being interposed between the upper electrode and the lower electrode on the substrate of the capacitor.

Claim 9 (Withdrawn): The semiconductor device of claim 1 wherein the capacitor is provided with a substrate having a bottom surface which does not contact a top surface of the carrier substrate on which the integrated circuit chip is mounted.

Claim 10 (Withdrawn): The semiconductor device of claim 3 further comprising a resin mold, the capacitor being enclosed in the resin mold.